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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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GREENBERG TRAURIG, LLP
885 Third Avenue -- 21st Floor
New York, NY 10022

EXAMINER

KITOV, ZEEV

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| ART UNIT | PAPER NUMBER |
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2836

DATE MAILED: 10/24/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/829,339

Applicant(s)

CHAN ET AL.

Examiner

Zeev Kitov

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 April 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 - 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 April 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

The disclosure is objected to because of the following informalities:

2. Brief Description of Drawings on page 4 lists only 3 out of 7 Figures. The Description of Fig. 3 is repeated twice. Appropriate correction is required.
3. Text on page 7, line 11 should have a reference to some figure of the Drawings, presumably to Fig. 4. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1 – 6, 17 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by LM1851 Data Sheet from National Semiconductor Corp. The LM1851 Data Sheet discloses all the elements of Claims 1 and 17, including a ground fault circuit interrupter (element LM1851 in Fig. 2), a surge protector component (element MOV in Fig. 2), and filter (circuit breaker coil and capacitor 0.01/400V in Fig. 2) connected across the power inputs of the GFCI (inputs Vcc and GND of LM1851 in Fig. 2).

Additionally, Claims 1 – 5, 17, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Muelleman, US Patent 5,448,443. Muelleman discloses all the

elements of Claim 1 and 17, including a device for protecting a ground fault circuit interrupter including a surge protector component (element MOV in Fig. 17), and filter (elements T1 and C in Fig. 17) connected across the power inputs of the GFCI circuit for filtering transient power surges to the surge protector component. Connection of the filter across the power inputs of the GFCI circuit is inherent property of the Power Conditioner Device (see Abstract).

Regarding Claim 2 and 18, LM1851 discloses MOV (see Fig. 2). Muelleman discloses a metal oxide varistor (element MOV in Fig. 17).

Regarding Claim 3 and 18, LM1851 discloses a low pass filter (elements 0.01/400 and circuit breaker coil in Fig. 2). Muelleman discloses the low pass filter (elements T1 and C in Fig. 17).

Regarding Claim 4, LM 1851 discloses an LC filter having a filter capacitor and inductor (circuit breaker coil and capacitor 0.01/400V in Fig. 2). Muelleman discloses an LC filter having a filter capacitor and inductor (secondary coil of T1 and C in Fig. 17).

Regarding Claim 5, LM1851 discloses the filter capacitor as a bypass capacitor (capacitor 0.01/400 in Fig. 2). The capacitor provides an alternating-current path of comparatively low impedance around the SCR and the power supply inputs of GFCI (Vcc and GND). Muelleman discloses the filter capacitor as a bypass capacitor (element C in Fig. 17). This capacitor provides an alternating-current path of comparatively low impedance around the L and N outputs (power supply inputs of the GFCI).

Regarding Claim 6, LM1851 discloses the filter inductor as being a solenoid of the GFCI circuit (circuit breaker coil in Fig. 2).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 7, 8, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muelleman in a view of Newman, US Patent 5,555,150. As was stated above, Muelleman discloses all the elements of Claim 1. But regarding Claim 7, it does not disclose a spark gap device. Newman discloses the spark gap device (element 26 in Fig. 1), the MOV (element 28 in Fig. 1) used together with the low pass LC filter (elements 18 and 16a, 16b in Fig. 1). Both patents have the same problem solving area, namely providing effective surge suppression. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used both spark gap device together with MOV and low pass filter, because as Newman states (col. 1, lines 41 – 67), spark gap devices are efficient in suppressing a high voltage surge with a current rate of up to 20,000 A. But since they are relatively slow devices, a leading portion of the surge may remain intact. That is why a combination of the spark gap device together with low pass filter and MOV is an optimal solution. Regarding Claim 8, Newman discloses the overvoltage prevention circuit (element 26 in Fig. 1) and the filter (elements 18 and 16a, 16b in Fig. 1).

Additionally, Claim 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over LM1851 Data Sheet from National Semiconductor Corp. in a view of Newman. As was stated above, LM 1851 discloses all the elements of Claim 1. But regarding Claim 7, it does not disclose a spark gap device. Newman discloses the spark gap device (element 26 in Fig. 1), the MOV (element 28 in Fig. 1) used together with the low pass LC filter (elements 18 and 16a, 16b in Fig. 1). The motivation is the same as above.

Regarding Claim 19, Newman discloses a spark gap device connected across the power inputs (element 26 in Fig. 1).

Regarding Claim 20, Newman discloses the spark gap device (element 26 in Fig. 1) and the filter (elements 18, 16a and 16b in Fig. 1) limiting the current applied to the surge protection element.

6. Claims 9 – 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over LM1851 Data Sheet from National Semiconductor Corp. in a view of Paradise, US Patent 5,617,284. LM1851 discloses most of the elements of Claim 9, including a ground fault circuit interrupter (element LM1851 in Fig. 2); a surge protector component connected across a set of power inputs (element MOV in Fig. 2), a bridge circuit with plurality of diodes (not marked in Fig. 2), a GFCI processor connected to the bridge circuit (element 1851 in Fig. 2), the ground transformer connected to the bridge circuit (element GND/NEUTRAL and HIGH coils in Fig. 2), a sensing transformer connected to GFCI processor (element SENSE and 1000:1 coils in Fig. 2), a solenoid (element circuit

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breaker coil in Fig. 2), a relay mechanism activated by solenoid (two N.C. contacts above the solenoid in Fig. 2). But it does not disclose a bypass capacitor connected to the surge protector and a filter connected across the power inputs for filtering transient power surges to the surge protector. Paradise discloses a surge protector component (element MOV1 in Fig. 21 and MOV2 in Fig. 3) with a bypass capacitor connected to the surge protector component (element C1 in Fig. 2 and C6 in Fig. 3) and a filter connected across the power inputs for filtering transient power surges to the surge protector (elements L1 and capacitors C6 in Fig. 3). Both patents have the same problem solving area, namely providing efficient surge protection of the electrical appliances. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used Paradise filtering solution in the LM1851 circuit, because as Paradise states (col. 4, lines 55 – 63), a capacitor placed in parallel with the MOV helps in detecting and clamping transients. The capacitor charges during a transient and the MOV will respond faster to the transient than otherwise. As to the LC filter, according to him (col. 5, lines 1 – 4), the filter helps prevent high frequency spikes from passing through. An alternative solution for improving the surge protection of the GFCI circuit would be a moving the MOV (Fig. 2 in LM1851) from the power input to a position in parallel to the capacitor 0.01/400. This will improve the surge protection of the GFCI circuit in accordance with teaching of both LM1851 and Paradise, but will expose two current transformers to the surges. To protect them, additional protection elements will be necessary. Selection of appropriate solution is up to the designer according to other requirements of his Specification.

Regarding Claim 10, both Paradise and LM1851 disclose a metal oxide varistor (MOV).

Regarding Claims 11 and 12, Paradise discloses a low pass filter having both capacitor and inductor (elements L1 and C6 in Fig. 3).

Regarding Claim 16, Paradise discloses the filter capacitor as the bypass capacitor (elements C6 in Fig. 3). The capacitors provide an alternating-current path of comparatively low impedance around the GDT1 and MOV devices (see Fig. 3).

Regarding Claim 14, LM1851 discloses the low pass filter having the solenoid as an inductor for the LC filter. As was stated above, in the circuit built according to teaching of LM1851 and Paradise the input filter includes the solenoid as the inductor.

Regarding Claim 15, Paradise discloses a spark gap device connected across the power inputs (element GDT1 in Fig. 3).

Regarding Claim 16, Paradise discloses the overvoltage prevention circuit (element GDT1 in Fig. 3) and the filter that limits the current applied to the surge protection element (elements L1 and C6 in Fig. 3).

Conclusion

The prior art made of record not relied upon is considered pertinent to applicant's disclosure

- US Patent 4,901,183 – Surge protection device – Lee,
- US Patent 4,587,588 – Power line transient surge suppressor – Goldstein,

- US Patent – 5,418,678 – Manually set ground fault circuit interrupter – McDonald.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zeev Kitov whose telephone number is (703) 305-0759. The examiner can normally be reached on 8:00 – 4:30. If attempts to reach examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on (703) 308-3119. The fax phone numbers for organization where this application or proceedings is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Z.K.
10/16/2002



BRIAN SIRCUS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800